of hairs. The *Ixodes* is very prolific. A single female confined in a pill-box produced no less than 143 eggs, of which, on August 9, all but six were found to be hatched, and the young swarm actively trying to escape from their prison. The egg-shells, both of *Ixodes* and *Argas*, are composed of tough chitine. The husbandmen, in trying to relieve their suffering flocks and to destroy the ticks, have employed men to pick them off the sheep, throwing the ticks on the ground; but this practice is now shown to be simply propagating the evil by sowing the pregnant vermin broadcast.

Canterbury, August 20, 1872.

On the Embryonic Form of the Gordii. By M. A. Villot.

The embryo of the *Gordii*, which has hitherto remained unknown, has no resemblance to the adult form. It is a microscopic cylindrical worm, scarcely 0·205 millim. in length, and 0·045 millim. in breadth, in which we may easily distinguish a head, a body, and a tail.

The head is as broad as the body and entirely retractile; it is armed with a triple circlet of stout prickles, and terminates in front in a sort of trunk or sucker. The trunk is rigid, owing to the four strong styles which serve it as a framework. The prickles of the first two rows (that is to say, those near the base of the trunk) are of the same form, arrangement, and size; they are six in each row, the upper ones slightly covering the lower ones; and they are partly inserted into a triangular sheath, which gives them the form of a lance-head. Those of the third row are implanted at the base of the head. They alternate with those of the first two rows, and do not resemble them either in number or in form; their sheath is nearly quadrilateral, and their free extremity is much longer; they are also stouter and more resistant; lastly, we count seven of them instead of six, as one of the sheaths bears two. The head, in its movements of protrusion and retraction, behaves like the trunk of the *Echinorhynchi*; it turns back upon itself from its apex to its base, and from its base to its apex, causing its prickles to describe an arc of 180 degrees. When it is out of the body, the points of the prickles are directed backwards; in the contrary case the opposite. Their arrangement is then completely inverted: the trunk, which was in front, is thrown completely to the back; then come successively the prickles of the first, second, and third rows, united in bundles and constituting with the trunk a solid rod in the centre of the body; the extremities of the prickles of the third row slightly project beyond the extremity of the body, which is then armed with a short but very resistant dart.

The body presents numerous transverse folds, very close together and very regular, so that it might be thought to be composed of true rings.

The tail, which is a little narrower than the body, is separated from it by a deep constriction; it is also very distinctly annulated, and

bears towards its posterior extremity, which is obtuse, four appendages—two very small ones in the centre, and two larger at the sides.

After its escape from the egg, when free in the water, where it is at first called upon to live, the embryo of the *Gordii* has not at its command any great means of locomotion. Its cylindrical and not very mobile tail cannot serve it for swimming. At the utmost it might make its way through the mud by means of the hooks with which its retractile head is armed. It must also be easily carried along by even the weakest current. Those which I kept in glass vessels finally adhered to the walls, and formed there, by their number, a sort of pulverulent coating. In the natural state they must fix themselves in the same manner to pebbles and the roots and stems of aquatic plants; and it is there that they lie in wait for the larvæ of which they are the predestined parasites.

This is not an hypothesis; for the experiment has been made. Having placed a certain number of the embryos in the presence of various larvæ of culiciform Tipularia (*Corethra*, *Tanypus*, *Chironomus*), I have had the satisfaction of seeing them encyst themselves. The little worm penetrates into these larvæ, whose integuments are but slightly resistant, by means of its cephalic armature, which it causes at first to project suddenly; its prickles becoming reversed catch in the tissues of the larva, fix themselves there, and allow the trunk to bury itself deeply: then it withdraws the whole, to recommence the same manœuvre. As soon as the embryo has found a resting-place to suit it, it remains motionless; then the fluids which bathe it all round become coagulated and form for it an investment which, by hardening, becomes a true cyst. This cyst, the outer surface of which seems to be covered with small irregular concretions, is at first transparent and exactly applied to the embryo; but if we reexamine it in a few days, we find that it has become brown and elongated, and that the embryo only occupies the anterior part of it, which probably is never completely closed. Thus the little parasite, after its encystation, still travels in the tissues of the larva, constantly elongating its cyst and leaving behind it an empty space, which becomes larger and larger, until the moment when itself passes into the larval state. Such are in fact the conditions of its existence; and such is the use of the complex armature which it has received from nature.

The *Gordii* are therefore subject, in the course of their development, not only to necessary migrations, but also to *complete metamorphoses*. This fact, which we were far from anticipating, shows that, as regards the first phases of evolution, there is no analogy between *Mermis* and *Gordius*, and that the latter, in the embryonic state, have a certain resemblance to the Acanthocephala.—*Comptes Rendus*, 5th August, 1872, p. 363.